

# THE WESTERN AUSTRALIAN NATURALIST

Vol. 18

October 20, 1990

No. 3

## FLORA OF BENGER SWAMP, SOUTHWEST WESTERN AUSTRALIA

By G.J. KEIGHERY and J.J. ALFORD,  
Department of Conservation and Land Management,  
P.O. Box 51, Wanneroo, Western Australia 6065

### INTRODUCTION

Benger Swamp is located on the Swan Coastal Plain, 2 kilometres west of the townsite of Benger. A very important site for wetland birds, most of the Swamp has been purchased by the Government of Western Australia, and upon completion will form Benger Swamp Nature Reserve (A34811).

Because of its importance, the Swamp is currently the subject of a management plan (Watkins *et al.* 1987) by the Department of Conservation and Land Management.

Baseline surveys of the waterbirds (Jaensch, in prep.) and birds in general Sedgwick (1973, 1978) and Sedgwick and McNee (1984) have been undertaken, and this paper reports the results of similar work on the flora.

Surveys were undertaken in December 1986, February and October 1987, by vehicle and foot traverse, to cover all flowering seasons. Voucher collections are deposited in the Western Australian Herbarium (PERTH).

Plant species recorded from Benger Swamp are listed in Appendix 1. The occurrence of each species in the vegetation types recorded for the Swamp (Watkins *et al.* 1987, fig. 10) is given. Two additional sites (drains and road verges) which have a distinct flora and are common on the reserve are also listed.

### DISCUSSION

One hundred and forty-two species of vascular plants were recorded for Benger Swamp.

Benger Swamp has been extensively altered by grazing, cropping, drainage, frequent wildfires, and numerous access tracks. Hence 68 of the 142 species recorded for the reserve are aliens. Several of these alien species (*Typha orientalis*, *Cynodon dactylon*, *Paspalum paspalodes*) now form major components of the dominant vegetation types found on the reserve.

One alien, *Crinum cf. powellii* (G. Keighery 8601), a bulbous inhabitant of clay flats in the tropics, is a new weed record for Western Australia. Although it had become well established, all plants were destroyed or removed by the authors during this survey.

The past history of disturbance has apparently mainly affected the herbaceous elements of the flora of the reserve. Similar clay flats in the area (A2517, A2547, A12049) and around Perth (Ellen Brook or Brixton Road)

have a rich and varied native herbaceous flora (G.J. Keighery unpub. data).

Apparently the variation of the hydrological cycle by rapid artificial drainage and the increased depth of the water in spring has led to the loss of these semi-aquatic plants, leaving only the larger tuberous species (*Potamogeton* spp., *Ottelia ovalifolia*, *Triglochin procera* and *Myriophyllum* species). It is unlikely that this herbaceous element could be re-established under current management practices, or without considerable cost.

## REFERENCES

- GREEN, J.S. (ed). *A Census of the Vascular Plants of Western Australia*. 2nd Ed. Western Australian Herbarium. 1985.
- JAENSCH, R.P. (in prep.). Waterbirds in the Wetland Nature Reserves in South-Western Australia: RAOU Waterbird Usage Study, 1981-85, CALM Perth.
- SEDGWICK, E. (1973). Birds of Benger Swamp, West. Aust. *Naturalist*, 12: 147-155.
- SEDGWICK, E. (1978). Further notes on the birds of Benger Swamp. *West. Aust. Naturalist*, 14: 22-24.
- SEDGWICK, E. & MCNEE, S. (1984). Relative frequency of species of waterbirds at Benger Swamp, W.A. *West. Aust. Bird Notes* 30: 11-12.
- WATKINS, D., HENDERSON, P., LANE, J. & MOORE, S. (1987). Benger Swamp Management Plan, Plan No. 7, CALM, Perth.

## Appendix 1: Flora of Benger Swamp and Nature Reserve

Families arranged alphabetically.

Genera within families also alphabetically listed.

\* = Introduced Species.

Taxon	Clay-pan	Mela-leuca	Typha	Open Waters	Grass-land	Drains	Roads
<b>AMARANTHACEAE</b>							
<i>Altemanthera nodiflora</i> R.Br.		×	×	×			
* <i>Amaranthus</i> ? <i>retroflexus</i> L.					×		
<b>AMARYLLIDACEAE</b>							
* <i>Crinum</i> cf. <i>powellii</i> Mill.		×				×	
<b>ANTHERICACEAE</b>							
<i>Borya scirpoidea</i> R.Br.		×					
<i>Sowerbaea laxiflora</i> Lindley		×					
<b>APIACEAE</b>							
<i>Eryngium</i> sp. (GK 8371)		×					
<b>ASCLEPIADACEAE</b>							
* <i>Gomphocarpus fruticosus</i> (L.) W.T. Aiton							×
<b>ASTERACEAE</b>							
<i>Angianthus preissianus</i> (Steetz) Benth.	×	×					
* <i>Aster subulatus</i> Michaux					×	×	
* <i>Carduus pycnocephalus</i> L.						×	
* <i>Centaurea melitensis</i> L.					×		
<i>Centipeda minima</i> (L.) A. Braun & Asch.	×	×					
* <i>Cirsium vulgare</i> (Savi) Ten.						×	×

Taxon	Clay-pan	Mela-leuca	Typha	Open Waters	Grass-land	Drains	Roads
* <i>Conyza albida</i> Willd. ex Sprengel					×	×	×
* <i>C. canadensis</i> (L.) Cronq.					×	×	×
<i>Cotula coronopifolia</i> L.			×				
<i>Cotula cotuloides</i> (Steetz) Druce	×						
* <i>Dittrichia graveolens</i> (L.) Greuter						×	×
<i>Gnaphalium sphaericum</i> Willd.		×					
* <i>Hypochaeris glabra</i> L.					×	×	×
* <i>Lactuca serriola</i> L.					×		
<i>Myriocephalus helichrysoides</i> A. Gray	×	×					
* <i>Pseudognaphalium luteo-album</i> (L.) Hilliard & B.L. Burtt.	×						×
<i>Siloxenus humifusus</i> Labill.	×	×					
* <i>Silybum marianum</i> (L.) Gaertner						×	
* <i>Sonchus oleraceus</i> L.						×	×
AZOLLACEAE							
<i>Azolla filiculoides</i> Lam.						×	
CALLITRICHACEAE							
* <i>Callitriche stagnalis</i> Scop.				×			
CENTROLEPIDACEAE							
<i>Aphelia drummondii</i> (Hieron.) Benth.	×						
<i>Centrolepis aristata</i> (R.Br.) Roemer & Schultes		×					
<i>Centrolepis glabra</i> (F. Muell. ex Sonder) Hieron.		×					
COLCHICACEAE							
<i>Wurmbea dioica</i> (R.Br.) F. Muell.	×	×					
CRASSULACEAE							
* <i>Crassula natans</i> Thunb.	×	×		×			
CYPERACEAE							
<i>Baumea acuta</i> (Labill.) Palla.	×						
<i>Baumea articulata</i> (R.Br.) S. T. Blake	×	×	×				
<i>Baumea juncea</i> (R.Br.) Palla	×	×		×			
* <i>Carex divisa</i> Hudson						×	
<i>Chorizandra enodis</i> Nees		×					
* <i>Cyperus congestus</i> M. Vahl.						×	
* <i>Cyperus eragrostis</i> Lam.			×		×		
<i>Eleocharis acuta</i> R.Br.	×	×					
<i>Isolepis marginata</i> (Thunb.) A. Dietr.		×					
<i>Isolepis producta</i> (C.B. Clarke) K.L. Wilson		×					
<i>Schoenoplectus validus</i> (M. Vahl) A. Love & D. Love				×	×		
<i>Schoenus</i> sp. (GK 8379)		×					
FUMARIACEAE							
* <i>Fumaria capreolata</i> L.					×		
* <i>Fumaria officinalis</i> L.			×		×		×

Taxon	Clay-pan	Mela-leuca	Typha	Open Waters	Grass-land	Drains	Roads
<b>GERANIACEAE</b>							
* <i>Erodium botrys</i> (Cav.) Bertol		×			×	×	×
<b>GOODENIACEAE</b>							
<i>Anthotium junciforme</i> Vriese		×					
<i>Goodenia filiformis</i> R.Br.		×					
<i>Velleia trinervis</i> Labill.	×	×					
<b>HAEMODORACEAE</b>							
<i>Tribonanthes australis</i> Endl.	×						
<i>Tribonanthes violacea</i> Endl. in Lehm.	×	×					
<b>HALORAGACEAE</b>							
* <i>Myriophyllum crispatum</i> Orch.	×	×					
<i>Myriophyllum drummondii</i> Benth.	×						
<i>Myriophyllum tillaeoides</i> Diels.	×	×					
<i>Myriophyllum verrucosum</i> Lindley	×						
<b>HYDROCHARITACEAE</b>							
<i>Ottelia ovalifolia</i> (R.Br.) Rich.	×	×	×	×			
<b>HYPOXIDACEAE</b>							
<i>Hypoxis occidentalis</i> Benth.		×					
<b>IRIDACEAE</b>							
* <i>Romulea rosea</i> (L.) Ecklon						×	×
* <i>Watsonia bulbifera</i> J. Mathews & L. Bolus						×	×
<b>JUNCAGINACEAE</b>							
<i>Triglochin centrocarpa</i> Hook.		×					
<i>Triglochin procera</i> R.Br.	×	×					
<b>JUNCACEAE</b>							
* <i>Juncus bufonius</i> L.	×	×					
<i>Juncus caespiticus</i> E. Meyer	×						
<i>Juncus holoschoenus</i> R.Br.	×					×	
<i>Juncus pallidus</i> R.Br.		×		×		×	
* <i>Juncus polyanthemus</i> Buchenau.	×						
* <i>Juncus usitatus</i> (hybrid) L.A.S. Johnson						×	
<b>LAMIACEAE</b>							
* <i>Mentha pulegium</i> L.	×	×					
<b>LAURACEAE</b>							
<i>Cassytha racemosa</i> Nees		×					
<b>LEMNACEAE</b>							
<i>Lemna disperma</i> Hegelm.		×	×	×		×	
<b>LOBELIACEAE</b>							
<i>Grammatotheca bergiana</i> (Cham.) C. Presl.		×					
<i>Lobelia alata</i> Labill.		×					
* <i>Monopsis simplex</i> (L.) F. Wimmer		×					
<b>LYTHRACEAE</b>							
* <i>Lythrum hyssopifolia</i> L.	×			×	×	×	
<b>MARSILEACEAE</b>							
<i>Marsilea drummondii</i> A. Braun	×	×					
<i>Pilularia novae-hollandiae</i> A. Braun	×						

Taxon	Clay-pan	Melaleuca	Typha	Open Waters	Grass-land	Drains	Roads
<b>MENYANTHACEAE</b>							
<i>Villarsia albiflora</i> F. Muell.	×	×					
<b>MIMOSACEAE</b>							
<i>Acacia pulchella</i> R.Br.		×					
<b>MYRTACEAE</b>							
<i>Astartea fascicularis</i> (Labill.) DC.	×	×					
<i>Melaleuca lateritia</i> A. Dietr.		×					
<i>Melaleuca raphiophylla</i> Schauer		×					
<i>Melaleuca teretifolia</i> Endl.		×					
<i>Melaleuca viminea</i> Lindley		×					
<i>Pericalymma ellipticum</i> (Endl.) Schauer		×					
<b>ONAGRACEAE</b>							
<i>Epilobium billardierianum</i> Ser.	×						
<i>Epilobium hirtigenum</i> Cunn.				×	×		
<b>OROBANCHACEAE</b>							
* <i>Orobanche minor</i> Smith					×		×
<b>OXALIDACEAE</b>							
* <i>Oxalis polyphylla</i> Jacq.						×	
<b>PAPILIONACEAE</b>							
* <i>Lotus angustissimus</i> L.		×			×		×
* <i>Lotus uliginosus</i> Schk.		×					
* <i>Medicago polymorpha</i> L.					×		×
* <i>Omithopus pinnatus</i> (Miller) Druce					×	×	×
* <i>Trifolium angustifolium</i> L.							×
* <i>Vicia hirsuta</i> (L.) Gray		×					
<i>Viminaria juncea</i> (Schrader & Wendl) Hoffsgg	×	×	×				
<b>PHILYDRACEAE</b>							
<i>Philydrella pygmaea</i> (R.Br.) Caruel		×					
<b>PHYTOLACCACEAE</b>							
* <i>Phytolacca octandra</i> L.						×	×
<b>POACEAE</b>							
<i>Agrostis avenacea</i> J. Gmelin		×					
<i>Amphibromus neesii</i> Steud.	×	×					
* <i>Avena barbata</i> Link.					×	×	×
* <i>Avena fatua</i> L.					×	×	×
* <i>Briza minor</i> L.							×
* <i>Bromus catharticus</i> M. Vahl.					×	×	×
* <i>Bromus hordeaceus</i> L.							×
* <i>Cynodon dactylon</i> (L.) Pers					×	×	×
* <i>Digitaria sanguinalis</i> (L.) Scop.				×	×		×
* <i>Echinochloa crusgalli</i> (L.) P. Beauv.					×	×	
* <i>Eragrostis curvula</i> (Schrader) Nees					×		
<i>Glyceria australis</i> C.E. Hubb	×	×		×			
* <i>Holcus lanatus</i> L.				×	×	×	
* <i>Lolium perenne</i> L.			×			×	×
* <i>Paspalum dilatatum</i> Poirlet					×	×	
* <i>Paspalum urvillei</i> Steudel						×	

Taxon	Clay-pan	Mela-leuca	Typha	Open Waters	Grass-land	Drains	Roads
* <i>Paspalum vaginatum</i> Sw.				×	×		
* <i>Pennisetum clandestinum</i> Hoscht. ex Chiov					×		×
* <i>Phalaris aquatica</i> L.				×	×	×	
* <i>Phalaris minor</i> Retz.					×	×	
* <i>Poa annua</i> L.			×				×
* <i>Polybogon monspeliensis</i> (L.) Desf.					×		×
* <i>Setaria pumila</i> (Poiret) Roemer & Schultes						×	
* <i>Sorghum bicolor</i> (L.) Moench.					×		
* <i>Sorghum halepense</i> (L.) Pers.					×		
* <i>Stenotaphrum secundatum</i> (Walter) Kuntze				×	×		
POLYGALACEAE							
<i>Comesperma ? calymega</i> Labill.		×					
POLYGONACEAE							
* <i>Polygonum arenastrum</i> Boreau							×
<i>Polygonum salicifolium</i> Brouss. ex Willd.		×	×		×		
* <i>Rumex acetosella</i> L.					×		×
* <i>Rumex crispus</i> L.			×			×	
PORTULACACEAE							
* <i>Portulaca oleracea</i> L.	×		×	×	×		
POTAMOGETONACEAE							
<i>Potamogeton ochreateus</i> Raoul	×						
<i>P. pectinatus</i> L.				×		×	
PROTEACEAE							
<i>Hakea varia</i> R.Br.		×					
RANUNCULACEAE							
<i>Ranunculus sessiliflorus</i> R.Br. ex DC.		×					
RESTIONACEAE							
<i>Leptocarpus coangustatus</i> Nees		×					
RUBIACEAE							
* <i>Galium divaricatum</i> Pourret ex Lam.		×				×	
SCROPHULARIACEAE							
<i>Glossostigma ? drummondii</i> Benth.	×	×					
<i>Gratiola peruviana</i> L.		×					
* <i>Parentucellia viscosa</i> (L.) Caruel							×
THYMELAEACEAE							
<i>Pimelea imbricata</i> R.Br.		×					
TYPHACEAE							
* <i>Typha orientalis</i> C. Presl.	×	×	×	×	×	×	×